

CLAIMS

What is claimed is:

1. A method of transmitting a loopback cell of a
2 connection established between a source ATM device and a
3 destination ATM device of an ATM network, said loopback
4 cell being returned to one of the switching nodes located
5 on the connection route, said loopback cell entering said
6 switching node by a port **P1** of adapter **B1**, before being
7 switched to an adapter **B2** as a normal cell of said
8 connection, and being then switched backward to said
9 adapter **B1** and exiting the switching node by said port **P1**
10 of said adapter **B1** instead of port **P2** of said adapter **B2**
11 as a normal cell of said connection,

12 said method comprising the steps of;

13 detecting in said adapter **B2** whether an incoming
14 cell includes a loopback condition, and if so

15 appending to said incoming cell a specific routing
16 label indicating that the incoming cell is a cell to be
17 returned in the connection; and

18 using said routing label by the protocol engine of
19 said adapter **B2** to transmit said cell through the switch
20 engine to said adapter **B1**, then over said ATM network
21 from said port **P1** of said adapter **B1**.

22 2. The method according to claim 1, wherein said
23 specific routing label is appended to said loopback cell

3 only if a loop control bit is set by the control point of
4 said switching node in said adapter **B2**.

1 3. The method according to claim **2**, wherein said
2 specific routing label is the identification of said
3 output port **P2** to indicate to the protocol engine of said
4 adapter **B2** used as an output adapter that said loopback
5 cell will be considered as a normal cell of said
6 connection entering into said port **P2**.

1 4. The method according to claim **3**, wherein a loopback
2 flag is appended to said loopback cell if said loop
3 control bit is set in order to indicate to the protocol
4 engine of said adapter **B2** used as output adapter that
5 said identification of said output port **P2** has to be
 appended to said loopback cell.

1 5. The method according to claim **4**, wherein said
2 loopback cell is transferred to an internal port of said
3 adapter **B2**, said internal port being only used for
4 loopback cells when said loopback flag is appended to
5 said loopback cell.

1 6. The method according to claim **5**, wherein said
2 internal port is used as an input port of said adapter **B2**
3 used as an input adapter for receiving said loopback cell
4 which is considered as a normal cell of the connection
5 entering said port **P2** used as input port in view of said
6 identification of said port **P2** appended thereto.

1 7. A system for transmitting a loopback cell of a
2 connection established between a source ATM device and a
3 destination ATM device of an ATM network, said loopback
4 cell being returned to one of the switching nodes located
5 on the connection route, said loopback cell entering said
6 switching node by a port **P1** of adapter **B1**, before being
7 switched to the adapter **B2** as a normal cell of said
8 connection, and being then switched backward to said
9 adapter **B1** and exiting the switching node by said port **P1**
10 of said adapter **B1** instead of said port **P2** of said
11 adapter **B2** as a normal cell of said connection, said
12 system comprising:

13 means for detecting in said adapter **B2** whether the
14 incoming cell includes a loopback condition, and if so

15 means for appending to the incoming cell a specific
16 routing label indicating that the incoming cell is a cell
17 to be returned in the connection; and

18 means for using said routing label by the protocol
19 engine of adapter **B2** to transmit said cell through the
20 switch engine to said adapter **B1**, then over said ATM
21 network from said port **P1** of said adapter **B1**.

22 8. The system according to claim 7, wherein said
23 specific routing label is appended to said loopback cell
24 only if a loop control bit is set by the control point of
25 said switching node in said adapter **B2**.

1 9. The system according to claim 8, wherein said
2 specific routing label is the identification of said
3 output port **P2** to indicate to the protocol engine of said
4 adapter **B2** used as an output adapter that said loopback
5 cell will be considered as a normal cell of said
6 connection entering into said port **P2**.

1 10. The system according to claim 9, wherein a loopback
2 flag is appended to said loopback cell if said loop
3 control bit is set in order to indicate to the protocol
4 engine of said adapter **B2** used as output adapter that
5 said identification of said output port **P2** has to be
6 appended to said loopback cell.

1 11. The system according to claim 10, wherein said
2 loopback cell is transferred to an internal port of said
3 adapter **B2**, said internal port being only used for
4 loopback cells when said loopback flag is appended to
5 said loopback cell.

1 12. The system according to claim 11, wherein said
2 internal port is used as an input port of said adapter **B2**
3 used as an input adapter for receiving said loopback cell
4 which is considered as a normal cell of the connection
5 entering said port **P2** used as input port in view of said
6 identification of said port **P2** appended thereto.